Abex CORPORATION

AMERICAN BRAKEBLOK DIVISION

HEAVY DUTY SERVICE BULLETIN



BULLETIN NO. 9

DON'T OVERLOOK THE BRAKE SHOES

Truck, trailer and bus shoes represent costly items and are important to the safe operation of the brakes. All precautions should be taken to extend their life and ensure proper brake operation. Frequently heavy duty brakes are open with the brake shoes and their mechanisms exposed to road contamination. This contamination becomes particularly damaging during winter months where roads are liberally salted. The use of demountable dust shields during winter months will protect the brake shoes and mechanisms resulting in measurable benefits.

INSPECTION:

The condition of the brake shoes at time of reline merit close inspection. Should the shoe radius be off, any deformity in the shoe, broken welds or worn areas are sure to result in brake problems.

A shoe fixture to accurately check a used shoe to new shoe specifications is advisable. In the absence of such a fixture or gauge, a new shoe length measurement between cam and anchor centers will suffice to detect a sprung shoe.

If the shoe is acceptable to this point the next step is to thoroughly clean the shoe prior to continuing the inspection. This includes cleaning the shoe table as well as the web. In some instances wire brushing is not adequate to clean the shoe down to bare metal. Rust flaking, which most frequently occurs on the shoe table as the result of moisture and contaminants held under the brake lining, can be removed by lightly tapping with a hammer. If rust flaking is very prevalent, consideration should be given to scrapping the shoe as this could weaken certain sections of the shoe, making it unfit for further service.

After the shoe is thoroughly cleaned make a close inspection of the complete web and table junction area for any separations and broken welds. The cam and anchor ends of the shoe web should also be inspected for wear and peening (impacting) which would show deformation in these areas. This inspection should also include the flatness of the shoe table and its squareness with the web.

The rivet or bolt holes in the shoe table must be closely inspected for any elongation or burring as both conditions will impair the proper attachment of lining. The new lining must fit tightly against the shoe table and be held firmly in place, otherwise brake noise can be expected and short lining life as well due to the material loosening up on the shoe table.

REPAIRING:

After making sure that the shoe table is cleaned to bare metal, remove all burrs from the rivet or bolt holes. If the holes are elongated it is possible to drill out the holes to the next larger rivet size. If the holes are too large then the alternatives are to fill the holes and redrill or scrap the shoe. In the case of shoes using bolts, any hole enlargement will call for filling the holes prior to redrilling.

Following the reconditioning operation all brake shoes should be thoroughly rust-proofed. Many dip the shoes in a rust preventive to protect them. Others brush on a light coat of an adhesive to the shoe table, contending it tends to muffle brake noise since it seals the lining to the shoe table.

ATTACHING THE BRAKE LINING:

Care should be exercised when selecting the proper size rivet to be sure it completely fills the rivet hole. It should also be of the correct length to give sufficient roll under the shoe table to clinch the rivet securely. If it is too short insufficient roll will result and if it is too long it will not clinch tightly. Start riveting from the center of the lining out to the ends. When riveting sintered metallic blocks it is necessary to use steel rivets instead of brass.

When bolts are used to attach the thick blocks they should be brass. On occasion aluminum bolts have been used, however these tend to elongate and in some cases break with very little extra torque on the nut. Bolts should be tightened in a crisscross sequence and a torque wrench should be used to ensure that 15 - 18 foot pounds are used for SAE threads and 18-20 foot pounds for coarse threads. It is recommended that bolt hole plugs be installed in the bolt counterbores. They are serrated for a press fit and are made of a friction material composition which will afford more brake lining area. An additional important advantage is the protection they offer from drum score, which is caused by accumulation of abrasive materials in the bolt hole counterbores that are not fitted with plugs.

Remember -- don't overlook the brake shoes and if there is any question with regard to their condition either from a point of physical strength or dimension, it is more economical to scrap such shoes than to gamble on their safe performance in the brake. Don't lose sight of the fact that a brake reline is expensive and the only way to regain the cost is by long trouble free service. Weak, worn and distorted brake shoes will not contribute to these objectives.

Patrick J. Meade
Technical Service Engineer